Site Visit of the European Space Operations Centre (ESOC) Dec. 7, 2005

Erik Gottschalk

Introductory Information

- Note this information:
  - Location: Darmstadt, Germany
  - Date and time: Dec. 7, 2005 13:00-17:00
  - Visitor: Erik Gottschalk
  - Hosts: Toby Clark, Thomas Beck
  - Overview: Operations Centre for the European Space Agency (ESA)
  - Purpose of control rooms: Control and monitoring of multiple satellite missions and network of ground stations (11 antennas) around the world.
  - List of activities: Presentation by Toby Clark, and visited multiple control rooms.
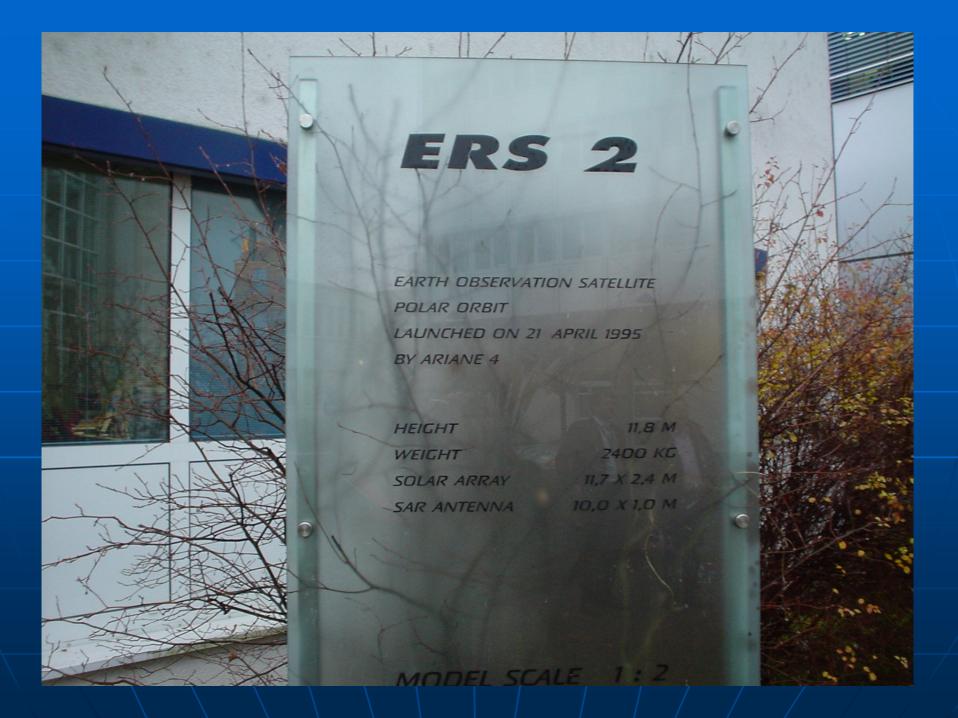
Physical Layout

- Describe the flooring:
  raised floor for cooling and cables
- Describe the noise control: carpet
- Describe the console:
  - multiple monitors
  - access to voice loops
- Take photos of the control room:
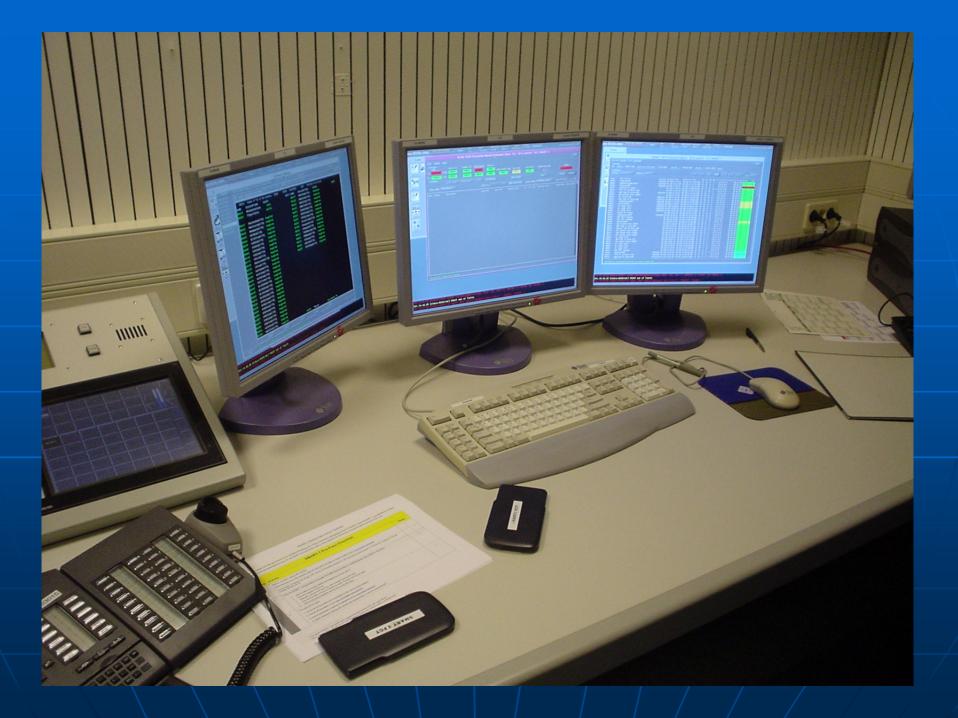 (see following slides)

SPACECRAFT	DATE			LAUNCHER
INTEGRAL	17	10	02	PROTON
MARS EXPRESS	2	6	03	SOYUZ
SMART-1	27	9	03	ARIANE 5
ROSETTA	2	3	04	ARIANE 5
VENUS EXPRESS	9	11	05	SOYUZ

ERS 2

EARTH OBSERVATION SATELLITE
POLAR ORBIT
LAUNCHED ON 21 APRIL 1995
BY ARIANE 4

HEIGHT	11,8 M
WEIGHT	2400 KG
SOLAR ARRAY	11,7 X 2,4 M
SAR ANTENNA	10,0 X 1,0 M

MODEL SCALE   1 : 2

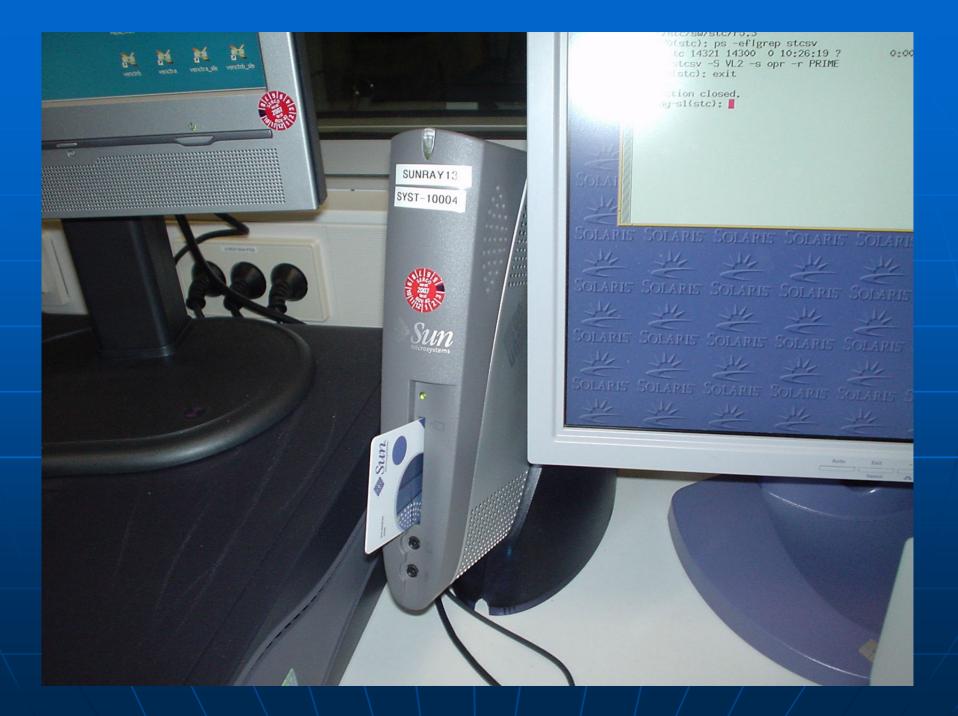# Hardware and Software

- Describe the PCs: Sun Microsystems & Linux
- Note: SunRay system is being evaluated for the prototype control room.
- Describe the communication equipment
    - No video conferencing
    - Voice loops for audio communication
    - Head sets are used when necessary
    - Video (analog) distribution system for shared displays
- Describe the application software
    - Control system softeare developed at ESA
    - Procedure development software

Networking and Security

- Speed on transfer link: 100 Mbits/sec
- How far is the data sent?
  - ➢ Data sent to ground stations
  - ➢ Data sent to satellites
- Is there a dedicated link: Yes
- How many users are connected: ~100
- What security is being used?
  - ➢ Firewall to the outside
  - ➢ No remote access from home or other locations.